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ABSTRACT

Three papers from this issue of the Working Papers are provided here. "The Nesting Constraint in Child Language," by Patrick Alan Brogan, discusses a child's ability to perform complex, internally embedded sentences. It is hypothesized that difficulty stems from a child's limited short-term memory. "A Framework for Studying Kin Term Usage," by Ronald Casson, describes a framework for studying a community's use of the terms of reference and address in their kinship system in everyday behavior. The eventual aim of this study is to understand children's acquisition of the adult system. Sociolinguistic rules for distribution and context of kinship term usage are examined, and the social meaning of kin term usage is discussed. "Development of Syntactic Structures in Monolingual and Bilingual Children (A Modest Proposal)," by Merrill Swain, presents a proposal for investigation of the syntactic development of children learning two languages simultaneously. The investigation is conceptualized within the framework of transformational theory, which is summarized, and sequences of a child's acquisition of mature and pre-mature syntactic structures are outlined. Methodology for studying the bilingual child's language acquisition is described, and an hypothesis regarding separation of the two languages is proposed. The other three papers from this collection are already in ERIC as ED 030 098, ED 034 966, and ED 098 799. (CHK)

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CHILDREN'S LANGUAGE STRUCTURE

Kay Atkinson, Brian MacWhinney, Caroline Stoel;
Arlene Moskowitz, Patrick Brogan; Ronald Casson;
Merrill Swain; and Ann Bodine

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THE NESTING CONSTRAINT IN CHILD LANGUAGE

Patrick Alan Brogan, U.C.S.D.
(Intercampus Exchange)

Professor Dan Slobin

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The most cursory interpretation of the Albany imitations shows the near immunity from "mistaken repetition"[1] of:

(1.)"He knows how to read because he goes to school."

On the other hand, of (2):

(2) "The man that fell down ran away".

it might be said that it was nearly immune from correct repetition. Even by "simple-minded,hard-nosed" approaches of counting the words in the utterance ,the first sentence is more difficult than the second. At a deeper level,the problem seems even greater. The second example is merely one sentence with a second sentence embedded on the noun phrase as a modifier. However,the first example has a matrix sentence, a sentence plus subordinating conjunction, the whole used as an adverb in the matrix sentence and an embedded reduced question used as the object of the matrix sentence. For example:

(1)a) He knows it because of that.
   b) How does he read
   c) He goes to school.

and

(2) a) That man ran away.
    b) The man fell down.

Not only does the first sentence contain one more embedded sentence than the second, but one of the embedded sentences is much further removed transformationally from the original sentences than the relative in the second example. The embedded question (1)b) undergoes at least for-to placement ,it deletion and WHmovement. Hence it is difficult to see where the relative simpleness of (1) could lie as opposed to (2).

[1] except low level knows → know,because ⇒ 'cause

A search through the mother's speech to the child and interviewer together offers a first tentative solution. The mother utters almost no relatives at all but embeddings of both of the types found in (1) are widespread. An assumption that has some likelihood is that a child would not develop a co struction that is seldom present in the input,no matter how simple. The child,for that reason,has not acquired relative clauses.

However,if we consider a sentence where the relative clause is on the direct object like:

(3) I saw the man who fell down.

we find,once again, that there are very few mistakes,mostly improper or missing relative pronouns or misplacement of the negative element. That is,the children seem to have no trouble reproducing relative clauses (although incorrectly extending their relative rules) when the relative is at the end of a sentence but not when it occurs at an earlier point.

Temporarily leaving that problem,let us consider a related one in adult performance. It's well known that one cannot grasp a sentence with a double,internal embedding like:

(4)*The man who the boy who the dog bit hit ran away.

These incomprehensible sentences are not limited to subject embeddings.

(5)* He gave the boy who the girl that John loaned the book to sent the flowers to a present.

It is not merely the length of the embedded sentence,as:

(6) He gave the boy,who had singlehandedly killed three hundred and thirty -four thousand enemy soldiers, a medal.

This is a good,though awkward sentence which would be much improved by inverting direct and indirect objects. Nor is the problem merely that there is a sentence embedded in an embedded sentence. For:

(7) The man that was hit by the boy that was bitten by our dog ran away .

...which has an all-but identical deep structure to Ex.(4) is acceptable. And:

(8) John's leaving surprising Mark is strange.

(9) He said that Jim thought that Mark had already left.

are perfectly straight-forward sentences.

If a sentence S can be properly analyzed as X s' Y where X and Y are both a string,perhaps null, of nodes,then S' is an embedded sentence. If neither X nor Y is null, S' is internally embedded. Examples (4) and (5) differ from (6),(7),(8) and (9) in that they contain an internally embedded sentence that itself contains an internally embedded sentence.Let us assume this is a situation that renders a sentence unacceptable,i.e. unable to be processed. Then this problem should not be limited to relative clauses .Note the following double use of a sentential adverb placed between subject and predicate:

(8) a)*John, because Mark,when he first saw it, didn't like the painting,thought him silly.
(8) b) John thought Mark silly because he didn't like the painting when he first saw it.
(8) c)John,because Mark, that particular day,didn't like the painting { thought him silly / laughed at him.

In introspection, it's obvious that what is wrong with examples (4),(5) and (8)a) is that one cannot keep track of everything and,most specifically, the first part of the upper matrix sentence is lost before the last part is reached.Traditionally,this has been seen as a performance problem due to limitations on the size of short-term memory. However one views it,the problem is one of memory; and memory is weaker in young children. Hence,it would not be unreasonable to hold that children near four years of age cannot properly perform any sentence containing an internally embedded sentence due to a less well-developed short memory system.

Numerous ways of testing this hypothesis suggest themselves . The task of imitating doubly,internally embedded sentences like (4) ,(5) and (8)a) could be given to adults to see what type of correspondence their "errors" would have to those of the children on the simple task. More to the point, children could be given the same sentences with the relative clause on the direct object but with the indirect object either before or after the direct form. The effect of moving sentential adverbs,as opposed to simple ones , to placement between the subject and predicate could be assessed. According to the hypothesis being entertained, there should be significantly lower ability to correctly imitate the sentences of these pairs which have internally embedded sentences, Finally,since the difficulty is correlated to memory development,which is seemingly a biological universal, similar phenomena should be found

in all languages, though ,unfortunately, the Samoan data is not usable for this purpose. In particular, in a S.O.V. language like Japanese, where the relative clause preceded the modified noun, sentences with the relative on the subject should be less difficult and when the relative is on the object ,the sentences should be more difficult as long as the object is not topicalized.

Ronald Casson

A FRAMEWORK FOR STUDYING KIN TERM USAGE

The following is an attempt to describe a framework for studying the manner in which the members of a community use the terms of reference and address of their kinship system in their everyday behavior. This framework is designed to make it possible to determine the adult system of kinship usage in a relatively brief period of time. The development of a framework for establishing the adult system has been attempted in order to make it possible to establish a baseline for studying the child's acquisition of the adult system. The entire enterprise is aimed at adding to our growing knowledge of the acquisition of language -- particularly to our knowledge of the acquisition of language use, an as yet little studied area of language acquisition. The application of this framework to the study of acquisition is a long range goal, however. The object of this paper is to describe the framework.

(While the framework is stated in general terms, it should be noted that the framework is to be applied in a village in Turkey and is tailored to several particulars of the Turkish situation that will be noted briefly.)

It should be stated in passing that the domain of kin terms of reference and address has been chosen only as a starting point. Another long range goal is to include in the framework the entire verbal repertoire used in the speech community for addressing and referring to other people. Those forms would include proper names, nicknames, titles, personal pronouns, baptismal names, hereditary names, and so forth as well as kin terms. For the present, attention will be limited to the domain of kin terms. Limiting the initial scope of the framework in this way should aid in adding methodological rigor. Anthropologists have studied kinship systems and terminologies for a long time and they have gained more control and understanding of kinship than they have of any other domain. When the framework has been developed for

the kin terms, it can be extended to include the other terms used by members of the speech community in address and reference.

(It is assumed here that terms of reference and address are universal, that every kinship system has terms of both types. Whether or not this is actually the case is not of much immediate concern as the Turkish kinship system to which the framework is to be applied does have both types.)

Before proceeding further, two sociolinguistic terms must be defined: speech community and verbal repertoire. These are terms that have been elaborated in the work of Dell Hymes (1962; 1964a,b;1967) and John Gumperz (1964). A community's verbal repertoire is defined by Gumperz as simply the "totality of linguistic forms regularly employed in the course of socially significant interaction" (1964:137). Hymes states that it has been traditional since Bloomfield to define the speech community as all those persons who speak a particular language and that he wants to break with this tradition. He wants to drop the one-language-one-culture notion and concentrate on the pattern of language use within the community (Hymes 1962:21-23;1967:18). The verbal repertoire of a speech community, then, is defined in terms of a population and not in terms of the boundaries of a particular language. The several dialects or languages used in a particular speech community, for example, are part of the verbal repertoire of the speech community.

While it has been stated that the framework will be limited to kin terms, it should be emphasized that the domain of kin terms is not to be limited in any way. All kin terms are to be included. The restriction that has been observed by some anthropologists studying kin terminologies that only mono-lexemic forms be included (Goodenough 1956) will be ignored. A second restriction, that only forms occuring at a single level of contrast in the taxonomic hierarchy of kin terms be included (Conklin 1964), will also be disregarded. The criterion for inclusion in the study will instead be use: whatever kin terms of address or reference are used in the speech community will be included.

It cannot be over-emphasized that the concern of the framework is with the usage of kin terms in the speech community. Formal methods have been used by anthropologists to study systems of kinship terminology and their referential meaning (Goodenough 1956;1965;Lounsbury 1956;1964a,b;Romney and D'Andrade 1964; Wallace and Atkins 1960) and these methods will be useful in the present approach as well, but the concern here is with discovering the social meaning involved in the usage of kin terms as well as the referential meaning of the terms alone (Blom and Gumperz, in press;Hymes 1967). The framework, then, is aimed at studying the pattern of appropriate usage of a linguistic domain rather than the structure of the domain itself. Hymes has discussed this distinction between the study of a system proper and the study of the use of the system extensively with regard to language and language use (1962;1964a,b;1967). He argues that while anthropologists and linguists have devoted a great deal of time to studying the languages (linguistic codes) of various communities, they have not turned such careful attention to studying the manner in which native speakers use their language. According to Hymes, an approach that focuses on language use is a study of the structure or system of <u>speech</u> (<u>la parole</u>), while an approach that focuses on the linguistic code is a study of <u>language</u> proper (<u>la langue</u>). The framework suggested here focuses on the structure or system of the use of kin terms in speaking.

PART ONE: SOCIOLINGUISTIC RULES

The first part of this framework for discovering a community's system of kin term usage is concerned with determining the <u>distribution</u> of kin terms -- with determining which term is used by which participants in which contexts. This distributional analysis should supply the investigator with the information needed to predict or appropriately anticipate which kin term will occur in given contexts. Thus the distributional analysis, to paraphrase Goodenough (1957) and Frake (1964), makes it possible for the investigator to specify what a stranger to the culture must know in order to perform appropriately -- ie., in a manner acceptable to the native -- in the roles and scenes of the

culture. The knowledge that the stranger must have can be stated rules for appropriate kin term usage. These rules may be termed sociolinguistic rules and may be of three types: alternation rules, co-occurance rules and sequencing rules (Ervin-Tripp 1967). The present framework is concerned primarily with alternation rules, but it may be extended to include co-occurance rules and then possibly sequencing rules.

The notion of contextual constraints (Blom and Gumperz, in press) is useful here. The sociolinguistic rules of kin term usage should specify the constraints placed upon kin term usage by context. As Blom and Gumperz put it, "In order to determine the social significance /social meaning/ of any one utterance, we need additional information about the contextual clues by which natives arrive at correct interpretations of social meaning." That is, in terms of the present emphasis on usage and social meaning, the problem is one of specifying the additional information beyond the purely referential meaning of the kin terms that the native needs in order to correctly assign social meaning.

Recently, several writers have attempted to specify the constraints imposed upon usage by content (Jakobson 1960; Hymes 1962; 1964a; Ervin-Tripp 1964; and Blom and Gumperz, in press). These writers have used social factors -- such as speech events -- in dealing with content because they find that specific linguistic forms are used in conjunction with particular social factors. Hymes, for instance, states that it is necessary to discover the relevant speech events in a speech community before it is possible to study their relation to linguistic usage or their components. By components of speech events he means 1) the participants -- addresser, addressee, audience, 2) the setting, and 3) the topic. According to Hymes, the starting point of an ethnographic study of speaking is the identification of the speech events of the community and the significant components, dimensions of contrast, and distinctive features of these speech events. He maintains that native contexts can be used to determine the domain of speech events, and that these contexts can be used as frames in discovering not only the set of speech events, but also their classes and dimensions of contrast (1962). Hymes identifies the following

as speech events in American culture: the Sunday sermon, the inaugural address, the heart-to-heart talk, the sales talk, the man-to-man talk, women's talk, ant the bull session to name a few (1962).

There are, however, methodological problems with schemes that attempt to deal with contextual constraints in terms of a classification of speech events or other social factors. These schemes take the social factors as the starting point -- as the basis upon which the remainder of the scheme is built. When the problem is approached in this way, language use is studied within a frame of reference established by the social factors. The investigator is required to determine not only the linguistic forms that vary across the social factors, but also the social factors themselves. The problem of determining the speech events of a community, for instance, has proven to be very difficult. How can the investigator determine all the speech events that are relevant in a particular speech community and how does he do this without imposing his own categories? He can start with the linguistically labeled, native categories of speech events, but this can only partially solve the problem. There are native terms for only a limited number of the community's speech events. The remainder must still be discovered if the investigator intends to look at all the kinds of speech events that are relevant to language use in that community.

This problem can be avoided by adopting a slightly different approach -- a different starting point. Rather than take social factors as the starting point, it may prove more profitable to reverse this procedure. It is suggested here that the investigator should start with a particular linguistic domain (dialect varieties, personal pronouns, kin terms and so forth) and consider only those social factors that are directly relevant to the occurance of particular linguistic forms within the specified domain. The investigator no longer has to determine the social factors before he studies their relationship to language use. Instead, he begins with the linguistic domain and notes only those social factors that make a difference in the selection of linguistic forms within the domain. (The social factors, however, will be

classes of factors. This would require an analysis in terms of a categorization of contextual constraints. That is, while "formal setting" may be the factor governing the use of a term, a categorization will be necessary in order to recognize an instance of this class. It will be necessary to know what settings qualify as members of this category and by what criteria or attributes.)

Perhaps an example will make this clearer. Stephen Tyler reports that the Koya use the term <u>cellelu</u> to denote YoSi and younger female parallel relatives, while they use <u>celli</u> to denote only YoSi <u>unless</u> 1) the female parallel relatives reside in the same patrilineally extended household, 2) the speaker has an intimate relationship with YoSi, or 3) the usage refers to a consanguineal relative when the setting is the home (1966:700). Tyler formulates this as follows:

$$a(+s_1)^{0,1}o(a-_j)^{0,1}{}_rY \quad (i=j)$$

celli/ In
celli/ PEH
celli/ H
cellelu/ elsewhere

<u>PEH</u> indicates patrilateral extended household, <u>In</u> intimacy, <u>H</u> in the home. The rules are ordered as given.

This clearly shows the advantage of examining the social factors only in terms of the linguistic forms. Only those social factors are included that are necessary to account for the usage of the kin terms. Because different terms are used in refering to a consanguineal relative depending on whether or not the home is the setting, the social factor <u>H</u> must be included. If the two terms were used interchangably (in free variation) or if they were distinguished on some other basis, the social factor <u>H</u> would not be included. (The class of settings that qualify as home settings would still have to be determined.)

This brings us back to the discussion of sociolinguistic rules. Tyler's rule is an example of a sociolinguistic rule of appropriate kin term usage. It is an alternation rule. It specifies the contextual constraints relevant to the use of one or the other of the linguistic alternates. <u>Celli</u>/<u>cellelu</u> are alternates in that they have the same referential meaning -- $a(+s_1)^{0,1}o(a-_j)^{0,1}{}_rY$, $(i=j)$ -- but are distinguished in terms of contextual constraints. More

familiar examples are the second person pronoun alternates T (tu, du) and V (vous, sie) described by Brown and Gilman (1960) and the various alternates used in English to denote father (a+n) -- dad, daddy, pop, pa, first name, nickname, diminutive, old man, boss and a variety of less common forms -- described by Schneider and Homans (1955).

(Turkish villages seem to be ideal for a study of this type. Kin terms are used regularly in everyday speech behavior in refering to and addressing not only actual kinsmen but practically everyone in the village. Even strangers are immediately addressed as aga or bacı (ElBr or ElSi), terms which indicate respect. The use of alternates is extensive; not only are there alternates within the system of Turkish kin terminology, but there are also forms borrowed from Arabic and Persian that alternate with the Turkish forms (Spencer 1960). Because Turkish villages are endogamous and people are frequently related in more than one way, villagers often have an option as to which kin term they choose to use; the sociolinguistic rules involved in this choice are also of interest -- c.f. Glick 1967; Murphy 1967.)

Sociolinguistic rules of kin term usage, then, predict (or appropriately anticipate) the occurance of particular kin terms in particular contexts. With these rules, the investigator can specify what a stranger must know in order to use the kin terminology in a manner acceptable to the natives in all the roles and scenes of the community. It should be noted that the procedures suggested in this part of the framework are not intended as discovery procedures. They are intended merely to aid in discovering the sociolinguistic rules. The success of an analysis should not be judged on how exactly these procedures are followed, but on how exactly the discovered rules anticipate appropriate usage and on how exactly they generate appropriate usage.

PART TWO: SOCIAL MEANING

The procedures of part one make it possible for the investigator to specify the sociolinguistic rules governing the usage of kin terminology. They supply the information that a stranger must

know to use the kin terms appropriately -- like a native -- in the community. They do not, however, specify what the occurrence of a particular context means to the native. In other words, part one of the framework makes it possible for the investigator to appropriately anticipate usage and to perceive appropriate usage, but it does not make it possible for him to assign the appropriate meaning to these usages. For example, a sociolinguistic rule may specify that in a particular context it is appropriate for A to address B as tu while in other contexts it is appropriate for A to address B as vous. This rule makes it possible to anticipate both usages, but it does not specify what the native understands by either usage or the difference between the two usages. Part two of the framework, then, is an attempt to devise procedures for determining the social meaning of particular usages.

The second part of the framework, then, shifts the perspective from a concern with specifying the sociolinguistic rules to a concern with specifying the social meaning of particular kin term usages. One method for attempting to discover the social meaning involved in kin term usage is suggested by the procedures used in componential analyses of the referential meaning of kin terms. It is possible, because of the shift in perspective, to now view the social factors isolated in part one as components in a componential analysis of the social meaning of kin terms. The distinction being made here between referential meaning and social meaning is illustrated by the example taken from Tylor. The referential meaning of the terms colli/collolu is represented by the formula $a(+a_i)^{0,1}o(a-_j)^{0,1}r^y$, (i=j) and the social meaning by the notation In, PhI, and H -- "intimacy," "patrilateral extended household," and "in the home." The social factors, then, can be termed the social components of the analysis and can be considered logically equivalent to the referential components usually isolated in a componential analysis. In short, it is suggested here that the social meaning involved in kin term usage can be analyzed to some extent in terms of these social components.

How these social components might be determined for the entire system is the next problem in the analysis. It is suggested here that the contextual constraints imposed on kin term usage by

social factors should be considered from the very beginning of the analysis. This procedure should produce a much larger number of relevant social factors than have been determined in componential analyses like Tyler's that only turn to social factors to distinguish terms not distinguished on referential criteria. This should be especially true since the framework includes all the various alternates and all the levels of contrast of the system. When this is done, it can be expected that social components will be discovered that are significant throughout the system and not just in distinguishing one pair of alternates. Just as "sex of relative" or "relative generation" are generally found to distinguish terms throughout the system, it is expected that "home setting" or "degree of intimacy" will be found to distinguish not only single pairs of alternates but terms throughout the system.

When the sociolinguistic rules and the social meaning involved in kin term usage have been determined by the investigator, it is possible to examine usages that deviate from the rules. A way of explaining these deviant usages is to view them as cases of "metaphorical switching" (Blom and Gumperz). When a term other than the one specified by the sociolinguistic rules is used, either the social meaning has been metaphorically switched or the rules have been altered (if mistakes and incompetency are ignored for the moment). If the sociolinguistic rules call for A to address B as vous in a particular context and he uses tu instead, it can be assumed either that A intends to convey a metaphorical social meaning or that he intends to change the rules governing address to B in this particular context. The metaphorical switch of social meaning in kin term usage can be studied in terms of the social components of the terms. By determining which component or components differ in the deviant usage from the standard usage, it should be possible to determine if the metaphorical usage involves change in "intimacy," "household membership" or whatever. In terms of Tyler's example, if a YoSi who has been addressed as celleki is suddenly addressed as Celli, either a metaphorical social meaning is indicated (greater intimacy, thankfulness, etc.) or the rules of address to this YoSi (and the social relationship) have changed.

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Development of Syntactic Structures in Monolingual and Bilingual Children
(a modest proposal)

Merrill Swain
University of California, Irvine
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Introduction

In the acquisition of syntactic structures by the developing child, there are two sequences that might be considered: the order of acquisition of well-formed adult structures, and the sequence of pre-mature structures used prior to the acquisition of the mature structures. Current psychological literature suggests that there is a high degree of similarity across English speaking children with respect to these two acquisition sequences, which carries implications of how language is learned. "The fact that some ungrammatical or immature forms...and that the order of acquisition of some mature grammatical forms...have been used by all the children that have been studied, shows that children are alike in the innate knowledge, language processing routines, preferences and assumptions they bring to the problem of language acquisition." (Brown and Hanlon, 1968). The effect upon these sequences when the language learner is faced with the task of learning not only English, but another language as well, will provide insights into the what and how of language acquisition for both monolinguals and bilinguals.

Generally then, this paper is concerned with presenting a proposal for the investigation of the syntactic development of children learning two languages simultaneously. The investigation is conceptualized within the framework of transformational theory. Hence, the paper begins with a brief summary of the important concepts of transformational theory, prior to reviewing the relevant literature.

Linguistic theory - Transformational grammar

Modern linguistic theory is primarily concerned with an ideal speaker-hearer unaffected by such grammatically irrelevant variables as attention, memory span, and motor abilities. Thus, a distinction is made between competence (the speaker-hearer's knowledge of his language), and performance (the speaker-hearer's use of language). From the latter, i.e., from actual behavior, the linguist (and the child learning the language) discover an underlying system of rules that generate the linguistic structures of the language. This system of rules is formalized by the linguist in a grammar, and as such, it is claimed to be a description of the ideal speaker-listener's intrinsic knowledge about his language.

According to Chomsky (1965) then, the grammar is a device that generates the infinite set of well-formed sentences of a language, assigning to each sentence one or more structural descriptions. The generative grammar[1] of a language contains a central syntactic component and two interpretive components; a phonological component and a semantic component. In a transformational grammar, the syntactic component has two subcomponents: the constituent structure subcomponent and the transformational subcomponent. The constituent structure subcomponent contains a set of phrase structure rules whose application results in a base string and an associated structural description called a base phrase-marker. These base phrase-markers are the elementary units constituting deep structures.

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[1] By generative grammar is meant simply a system of rules that in some explicit and well-defined way assigns structural descriptions to sentences.

The transformational subcomponent operates on the deep structures to produce derived, surface structures. Roughly speaking, this subcomponent is responsible for combining, reordering, deleting, and substituting the base phrase markers producing the abstract representation of the surface structure of a sentence. A listing of the rules applied by the syntactic component in the generation of a sentence is considered as a listing of the derivation history of that sentence. The greater the number of rules applied, the more complex the derivational history.

The phonological and semantic components are considered to be interpretive systems only; i.e. they provide an interpretation of the output of the syntactic component: the base structure providing the relevant syntactic information needed for semantic interpretation; the surface structure providing the relevant syntactic information needed for phonological interpretation. Hence, the syntactic component is the critical component in any language.

In short then, transformational theory has provided investigators interested in linguistic phenomenon with a theory of language that defines language as that set of sentences generated by a grammar; that in a formal manner describes the knowledge a native speaker has about his language, and that provides a framework within which lingistic data may be organized. A transformational grammar is not in itself however, a model for a speaker or a hearer: "When we say that a sentence has a cerain derivation with respect to a particular generative grammar, we say nothing about how the speaker or hearer might proceed, in some practical or efficient way, to construct such a derivation. These questions belong to the theory of language use...the theory of performance. No doubt, a reasonable model of language use will incorporate, as a basic component, the generative grammar that expresses the speaker-hearer's knowledge of the language." (Chomsky, 1965, p. 9)

Much of the psychological research motivated by transformational theory has involved attempts to show: a) that the structural descriptions assigned to a sentence by a grammar are those assigned to a sentence by an individual (e.g. Fodor and Bever, 1965; Garrett, Bever, and Fodor, 1966; Johnson, 1965). The evidence suggests strongly that the structural descriptions provided by the grammar are psychologically real units. b) that the formal operations by which the grammar assigns a structural description to a sentence correspond to those processes by which an individual assigns a structural description to a sentence, (e.g. Mehler, 1963; Miller and McKean, 1964; Savin and Perchonock, 1965). The basic assumption underlying this work is that if sentence production by the grammar involved processes similar to sentence production and/or recognition by individuals, then a relationship should be found between the length of the derivational history of a sentence (as generated by the grammar) and the perceptual complexity of a sentence as measure by such performance variables in sentence recognition and production as recall accuracy (Mehler, 1963), storage space utilized (Savin and Perchonock, 1965) and latency periods (Miller and McKean, 1964). Results obtained were as predicted (i.e. the lengthier the derivational history, the less accurate were Ss recall of the sentences, the more memory store was used, and the longer Ss took to recognize the sentence) only when such basic transformations as T-passive, T-question, T-negation and combinations of these transformations were considered. When derivational length included such transformations as the affix-movement transformation, the particle-movement transformation, the predictied relationship was not found. The general conclusion Fodor and Garrett (1966) reach in

discussing this literature, is that the relationship between processes of sentence generation by a grammar, and by a human, if present, is more abstract than previously imagined. c) that the derivational complexity of grammatical structures is related to the order of acquisition of knowledge about those grammatical structures (Brown and Hanlon, 1968).

Brown and Hanlon consider in their paper, the order of acquisition of mature syntactic structures as it is related to 'cumulative' derivational complexity. Other investigators (e.g. Klima and Bellugi, 1966; Brown, 1968; Braine, in press) have considered the sequence of pre-mature syntactic structures used prior to the acquisition of mature forms. Although the sequence of pre-mature forms probably also involves a movement from least complex to more complex, the relevant basis of comparison cannot be the adult grammar, but rather the grammar representing the child's knowledge at that time. Hence, the notion of cumulative derivational complexity used by Brown and Hanlon in studying the acquisition of well-formed adult structures is not applicable to the study of the sequence of immature grammatical forms preceding the acquisition of the mature structures. What the investigator must instead do is formalize the child's knowledge at a given point in time, and then determine whether the 'next acquisition' is more or less complex.

Sequence of acquisition of mature syntactic structures

To the author's knowledge, Brown and Hanlon's (1968) paper is the only one to consider directly the relationship between derivational complexity of grammatical structures and order of appearance of mature adult forms of these grammatical structures. Why one should expect to find such a relationship is reasoned by Brown and Hanlon as follows: a grammar is supposed to reflect the knowledge a native speaker has about his language; the child must acquire such knowledge; it is reasonable to assume the child acquires this knowledge in the order of least complex to most complex; hence, it is hypothesized that the order of emergence of grammatical knowledge in the child will be reflected in the formal adult grammar as a move towards derivational complexity.

Brown and Hanlon are concerned only with relations of derivational complexity of the type they name cumulative, and for which they provide the following definition: "Y has greater cumulative derivational complexity than X ($X \prec Y$), when the derivation of a sentence Y applies all the rules applied in the derivation of a sentence X, plus at least one rule not applied in X" (p. 4). By limiting their study to sentences standing in a relation of greater or lesser cumulative derivational complexity to one another, they avoid having to make any judgment on the psychological difficulty of any rule in the derivation relative to other rules. The assumption is that "when the derivation of one sentence involves everything that the derivation of another involves, plus something more, then the something-more sentence will be more complex psychologically." (p. 5)

The set of sentence types that Brown and Hanlon considered and that can be partially ordered with respect to one another to provide 19 predictions as to the order of emergence, consisted of simple active affirmative declarative sentences (SAAD), yes-no questions (Q), negative sentences (N), truncated predicates (Tr), truncated questions (TrQ), negative questions (NQ), truncated negatives (TrN), and truncated negative questions (TrNQ). The data used were sample utterances of spontaneous speech from each of the now renowned Adam, Eve, and Sarah at five different stages of their lingistic development. (The stages were defined in terms of the mean and ranges of utterance length.)

The criterion used to represent the acquisition of structural knowledge was the appearance of at least six utterances of a given type in a sample. The criterion of six utterances was used because that was the lowest output rate in the mother's speech samples of any of the sentence types. Their data analysis supported the prediction that constructions would emerge in the order of derivational complexity. "The fact that there is a sequence among well-formed constructions from those that are derivationally simple, in terms of the adult grammar, toward those that are derivationally complex, suggests that the adult grammar does, at least roughly, represent what it is that the child is learning." (p. 64)

Brown and Hanlon distinguish between acquisition of new rules and added rules, where the former refers to the actual acquisition of new rules (i.e. that knowledge about that structure is now incorporated into the child's linguistic competence), while the latter refers to a new combination of already acquired rules. The data suggested that new rule complexity was a better predictor of order of acquisition than added rule complexity in that there was a clear time interval between the non-use and use of all new rules for all three children; whereas in several instances added rules appeared in the same

stage as acquisition of the respective new rules. Adam, for example, used N before TrN; however, Tr and TrN emerged in the same stage.

In many of the earlier studies investigating performance variables related to derivational complexity, factors such as sentence length, frequency of use, and semantic changes were often confounded with derivational complexity. Brown and Hanlon consider each of these factors with respect to their study, concluding in each instance that the order of emergence of grammatical knowledge is unlikely to be accounted for by any of the three above-mentioned factors.

Sentence length is readily disregarded as a possible factor. Of the 19 predictions made on the basis of cumulative derivational complexity, seven would be the same if length were the variable upon which the predictions were based. For the remaining 12, length and derivational complexity would predict differently. Brown and Hanlon report, that in examining the outcomes of these 12 predictions, "across the three children we find that complexity is correct in 31 instances. The outcome is unsettled in 4 instances, and length is correct just once." (p. 45)

Semantic differences exist between SAAD and the other sentence types considered that could be responsible for the later development of the more complex grammatical structures. Brown and Hanlon however, are concerned only with the acquisition of mature adult grammatical structures. It is obvious that the semantics of such structures is not the source of difficulty in acquisition, as earlier pre-mature forms clearly signalled the intended meaning: no, appended to the sentence signalled negation; rising intonation signalled interrogation; huh? and right? signalled confirmation requests. The difficulty appears not to be in the semantics of the sentence types but in the lack of knowledge of the adult structure signalling that meaning.

Finally, frequency of usage of sentence types by the adult model must be considered. It turns out that of the 19 predictions based on derivational complexity, 17 of them are the same when the basis of prediction is the frequency of usage by the children's mothers. Brown and Hanlon suggest that "this is an incidental consequence of the relation between frequency and complexity, and that frequencey, above some minimum level, does not determine the order in which structural knowledge emerges." (p. 67). As supporting evidence, they cite an example in which certain wh questions were used by the mothers at a high frequency rate prior to the understanding of wh questions by the children. The children produced the two most frequently used structures in a highly rigid fashion, while producing none of the grammatically close forms also used by the mothers. Only later, when the relevant structural rules were acquired, were the original unassimilated forms reanalyzed in terms of the newly acquired rules.

Sequence of acquisition of pre-mature syntactic structures

The general question being posed here is, what about the structure of his language does a child know at successive points in his development? Grammars[2] written for these points in time attempt to formally characterize this knowledge. It appears that from two-word utterances onward, the child's utterances are structured (e.g. Miller and Ervin, 1964). The earlier constructions are derivable from phrase structure rules. Only later in development does it become necessary to include transformational rules as part of the child's competence, (Braine, in press). For each mature syntactic structure then, there is a series of pre-mature forms preceding its acquisition. In this section, the structural sequences preceding the acquisition of the adult syntactic structures of noun phrases, negative sentences, and interrogative sentences will be briefly described.

a) Noun Phrases

Brown and Bellugi (1964) consider the development of the noun phrase (NP) at three points in time for several children. At time 1, the phrase structure rule NP → (Mod) + Noun[3] characterizes the NP. In Mod were articles, possessive pronouns, numbers, demonstrative adjectives and pronouns, descriptive adjectives, and quantifiers. At time 2 (5½ weeks later), articles and demonstrative pronouns formed two separate classes, distinguishable from Mod. This is represented by the rule NP → (NUM) + (ART) + (Mod) + N. Finally, at time 3 (10 weeks later), the original Mod class had divided into 5 classes: descriptive adjectives, possessive pronouns, demonstrative pronouns, and a residual class of modifiers. Although differences in the children exist, the general sequencing is the same: first, undifferentiated noun and modifier classes, followed by differentiation within the classes. Braine (in press) notes that differences may exist in the order in which the classes differentiate out. Andrew (Braine's son) developed order classes of noun modifiers relatively later, and differentiation of the noun class relatively sooner, than Adam.

The NP acted as a unit for the children as demonstrated by their substitution of a pronoun for NP. Although constituent structure is apparent here, Braine (in press) points out that the early NP's owe nothing to transformations as the 'derived structure'[4] adj N occurred in the children's speech before N is adj did, or else the set of adjectives used in N is adj were not those used in adj N. Transformational theory proposes that the latter is derived from the former by the following transformation: N is adj ⇒ adj N. When the transformation is demonstrated to be a part of the child's knowledge by his production of a set of sentences like: The doggie is brown; see the brown doggie, then the child can be considered to have acquired the knowledge of syntactic structure of the NP as represented in the adult grammar.

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[2]For a discussion on the methodological problems involved in writing a grammar from a child's corpus, see Braine (in press) section 1.3.

[3]The two rules given here are specifically Adam's, time 1 characterizing Adam at about 27 months.

[4]To say that a child uses a 'derived structure' before knowing about the transformation that produced it, is a misuse of the linguistic terminology. A structure cannot be derived until the transformation that derives it is within the individual's competence. That a child uses what according to an adult transformational grammar is a derived structure does not mean that it is a derived structure in the child's grammar.

b) Negative Structures

The description of stages in the development of English negative structures presented here follows that given by Bellugi (1964), and Klima and Bellugi, (1966) in their longitudinal study of Adam and Eve.

The earliest form of negation is the affixation of no or not to a sentence. The negative element most often preceded the sentence (e.g. no drop mitten); sometimes it followed the sentence, (e.g. wear mitten no). The primitive negative takes this form in other languages too, e.g. Russian (Slobin, in press), French, (Grégoire, 1937).

This simple negative was found also in the next stage (3 to 6 months later) but the negative elements can't and don't were also used, and most negations were made by placing the negative element in front of the verb as in I can't see you. Because the affirmative forms can and do do not appear, these negative structures can still be characterized by phrase structure rules. Double negation occurs in negative sentences beginning with why not, as in Why not me can't dance?

In the third stage, can and do appear in the affirmative, giving some reason to suspect that transformational rules are in operation. Indefinite determiners begin to appear as in I don't want some supper. The why not form is replaced by why + negative sentence (e.g. Why he can't play with it?).

In the fourth stage (data only from Adam), many sentences are now in correspondence with those produced by the adult grammar. A new kind of double negative appears resulting from the use of negative indefinite determiners and pronouns as in Nobody won't recognize us; I can't go nowhere.

c) Interrogative Structures

i. yes-no questions (Klima and Bellugi, 1966): The earliest form of the yes-no question is signalled by rising intonation (e.g. See hole?). Subject-auxiliary inversion must await the development of the auxiliary verbs. Shortly after the development of modals and some forms of be and do, the yes-no question formed with a falling contour and inversion of the subject noun phrase and auxiliary component begins to appear (e.g. Does lions walk?). Inversion, and the use of do occurred in yes-no questions before wh questions.

ii. wh questions (Klima and Bellugi, 1966; Brown, 1968): Early wh questions are simply learned routines for requesting the names of actions and objects, and their locations. The children's responses to their mother's wh questions show a lack of comprehension of them.

The next stage was one in which the wh word was affixed to the beginning of the sentence without subject verb inversion as in What the dollie have? The responses of the children to wh questions reflect their increasing comprehension of the constituent represented by the wh element (e.g. who represents the subject noun phrase; what represents the object noun phrase).

In the last stage, shortly after the appearance of the subject auxiliary inversion in yes-no questions, inversion appears in the wh questions.

Acquisition of two languages simultaneously

There is a remarkable paucity of studies in the literature that consider children who have been exposed to two languages from birth, leading to eventual acquisition of two language systems. In fact, what the literature contains are a few diary studies (e.g. Imedadze, 1966; Leopold, 1939-49; Ronjat, 1913) and several anecdotal reports (e.g. Tabouret-Keller, 1962).

Imedadze (1966) suggests that there are qualitative as well as quantitative changes in the language development sequence of the bilingual child. The child begins by attempting to make out of the several input languages, one language. Early speech of the to-be-bilingual child is mixed with respect to languages, e.g. Ali nasse (all (English) wet (German)) (Leopold, 1939); Vidish Dali buti nalisu (look (Russian) Dali (name) ball (Georgian) drew (Russian)). (Imedadze, 1966). Although the words belong to different languages, they comprise a single vocabulary stock for the child. As linguistic development continues, the one language system splits into two.

There is agreement among the various authors as to why 'the' language should separate into two systems: because of the practical necessity of making himself understood by various people in the environment (Imedadze, 1966); "la différenciation s'est faite à partir du moment où les conditions sociales d'usage ont donné à l'enfant l'occasion d'etablir l'appartenance des terms." (Tabouret-Keller, p.176); because of strict adherence to the rule, "une personne, une langue; la mère: l'allemand, le père: le français." (Ronjat, 1913)

It would certainly be foolish to disagree with the obvious fact that separation occurred at some time in the development of the bilingual child. But as has already been noted, the central component of language according to transformational theory is the syntactic component, with the semantic and phonological components simply providing interpretations of the syntactic structures. Thus, what must be looked at, in order to determine if and/or when 'true' separation of the linguistic systems occurred, is the grammatical level. It is difficult to tell from the data given in the above cited studies, to what extent the linguistic systems were separated by the child on any but the phonological level.

To say then, that a child attempts to make out of several input languages, one language, is to say that one grammar will suffice to represent the child's early knowledge. (Obviously at some point in the developmental sequence two grammars will be needed as two grammars are needed to account for the adult bilingual's speech). When that language splits into two, it is possible that the split will be only on the phonological level, and that one grammar (in which the phonological component has two phonological representation of each linguistic element) will continue to generate the now superficially different languages. This is parallel to the previously cited situation in which Braine (in press) claimed that the child learned 'derived' structures before he learned the transformations. With the bilingual child, it may be that he has learned superficial differences between the languages without yet knowing that differences on the syntactic level exist between the languages.

An example may help to clarify this point. The example comes from some data I collected in pilot work with a 5½ year old Spanish-English bilingual child in the summer of 1968. (The method is described in the next section). I found that my subject consistently gave me sentences of the form: NP didn't $MV_{\text{past tense}}$ (NP) ; or NP don't $MV_{\text{present tense}}$ (NP). (e.g. I didn't did, He didn't went, He didn't came, The boy don't wants a cookie.)

That is, it appeared that she knew about the do-support transformation[5] which does not exist in Spanish. However, her consistent attachment of the tense marker onto the main verb (which is where the tense marker is inserted in both the Spanish simple present and simple past) made me suspicious. Putting the tense marker on the main verb when did is used, often occurs with 3-4 year old English monolinguals, but is neither usual not consistently done by 5½ year old English monolinguals.

I considered the possibility that for this bilingual child, the did and do of her didn't and don't were not transformationally motivated, but rather lexical equivalents of the Spanish negative element no. I checked the corpus for sentences in which do should be used, e.g. yes-no questions. In a translation from the Spanish equivalent of Do I like to read books? she did not use do. Similarly in a translation from the Spanish equivalent of Why does he do it? she gave me Why he do?, again omitting the transformationally motivated do.

Hence, with what evidence I have available, it seems reasonable to suggest that only one grammar is needed to represent the child's knowledge of the syntactic structures...that of the Spanish language. And, one rule of the grammar (at the phonological level) must state that don't is a translation of the Spanish no in the context of the simple present tense, and didn't is a translation of the Spanish no in the context of the simple past.

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[5]According to Klima's (1964) analysis the element DO is inserted transformationally as a tense carrier because the tense is blocked from being attached to the main verb by the neg element in negative sentences, by the ~~by the~~ emphatic element in emphatic sentences, by the subject in yes-no and wh questions.

Methodology

As stated earlier, the literature reports no experimental studies systematically investigating the acquisition of syntactic structures in children learning two languages simultaneously. Hence, in this section, two possible methods for studying the syntactic development of bilingual will be discussed. Some pilot data has been collected using one of the methods (the translation technique) and further pilot work related to the methods discussed below will continue through the fall of 1968.

For purposes of codification, the first method to be discussed is hereafter called the translation technique, and the second method, the interpreter technique. Both methods are considered a means of obtaining controlled production, i.e., a means of elliciting sentences from the child which although not direct imitation, insure comparability of sentence content and sentence types across subjects, (as well as insuring, of course, that the relevant data is being collected!)

The translation technique is an extension of the ellicited imitation technique discussed by Slobin and Welsh (1967). What the investigator must prepare are two sets of sentences relevant to the researcher's area of interest (e.g. the negative system, the interrogative system, wh question, etc.); and in which prior comparison of the two linguistic systems would lead one to suspect specific syntactic difficulties in translation (otherwise one is simply testing for different phonetic realizations of the same meaning...which is not uninteresting, but relevant data might more easily be collected using other methods.) One set of the sentences must be prepared in language A, the second set being a grammatically correct translation of the first set of sentences into language B. These two sets of sentences are represented respectively as Language A_{adult} and Language B_{adult} in Diagram 1.

Insert Diagram 1 about here

Diagram 1 illustrates the six stages of the paradigm for the translation technique. In stage 1, the child is read a syntactically correct sentence in Language A and asked to say the sentence in Language B.[6] The speech of the child, having been recorded on tape, is then transcribed, and several days later, stage 2 is carried out. In stage 2, the child is read his own responses of stage 1 (represented as Language B_{child} in the diagram), and again the child is requested to say the sentence in the other language (Language A). Stages 3 and 4 are a repeat of stages 1 and 2 except that now the original input is the set of grammatically correct sentences of Language B. Note that stages 3 and 4 are exactly equivalent to stages 2 and 1 respectively if the child's translations are all grammatically correct sentences. Stages 5 and 6 are

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[6]It was suggested to me by Basil Bernstein that the child should be asked to give two translations. After all, even the adult translator, if given a second opportunity to translate the same sentence, may restructure his response. Pilot work will have to be done to determine if differences occur and the nature of the differences between first and second translations.

Diagram 1

Translation Technique Paradigm

	Stimulus language		Response language	
Stage 1	Language A_{adult}	⟶	Language B_{child}	
Stage 2	Language B_{child}	⟶	Language A	
Stage 3	Language B_{adult}	⟶	Language A_{child}	
Stage 4	Language A_{child}	⟶	Language B	
Stage 5	Language A_{adult}	⟶	Language A	imitation technique
Stage 6	Language B_{adult}	⟶	Language B	

simply direct imitations of the original model sentences,[7] and although they are not essentially a part of the translation technique, comparisons made between the child's translations into one language, and his imitations of that language may provide some clues as to the cognitive processes involved in the translation process.

One of the arguments that has been rallied against the imitation method is that sometimes it is very difficult to know if the child is doing anything more than imitating the sounds he hears. In fact, it is only when specific differences in the sentence structure, or recoding of the lexical items within the imitated sentence show up, that one feels relatively safe in concluding that the imitated sentence has been syntactically and semantically understood by the child. One of the built in factors of the translation technique is that recoding must occur, i.e., that the meaning must be retrieved. In the Slobin and Welsh (1967) paper, the statement is made that "if the content is retrieved, it may then be encoded in the child's own syntax in imitation." What the translation process insures is that the content is retrieved. Hopefully the child then goes on to encode the meaning in his own syntax.

With this method, it is possible to begin answering the 'comprehension vs. production' problem, where the concern is with non-picturable, syntactic elements. In other words, say that the child correctly translates from Language A to Language B but either is not able to retranslate back into Language A, or in so doing makes a mistake that is consistent over all sentences of the same type, then this can be considered to demonstrate that comprehension has occurred before production, or at least before grammatically correct production has occurred. In the pilot data collected, there is evidence that my subject[8] understood English wh questions, as demonstrated by her translation of them into grammatically correct Spanish questions, but was unable to produce correct English wh questions. For example, Why doesn't he do it? was translated by her as Porque no le hace?. However, when several days later she was asked to translate the Spanish questions into English, she consistently neglected to transpose the subject and auxiliary: Porque no le hace? was translated into Why he don't do? Other translations from her grammatically correct Spanish questions included Where I'm going? and Where they was walking?

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[7] Dan Slobin suggested that stages 1 and 5 be combined into one stage, and similarly with stages 3 and 6: i.e., following the presentation of the model sentence, the child would first be required to imitate the sentence, and then translate. The assumption here is that the translation given may not be a translation of the original sentence, but of the sentence constructed in the child's own syntax. Hence, the imitation data would tell us what the input to the translation was. Again, pilot work will have to be done to determine if differences occur, and the nature of the differences occurring, between translations preceded by imitations and those not preceded by imitations.

[8] My subject, Carmita was a Sp-Eng bilingual child attending the last week of a six week summer Head Start program in Oakland at the time of testing. She was 5 years, 8 months old and had spent the first three years of her life in Ecuador, then the family moved and settled in Oakland. Her father and mother both speak English, but according to Carmita's mother, only Spanish is spoken in the home. The pilot work (stages 1, 2 and part of 3 was conducted with the intent of discovering if the translation task was a reasonable task to ask of a child. It was!

The interpreter technique is basically an extension of Bellugi's Interrogation Test (see Slobin, et al, 1967, appendix 1.3.2) in which the experimenter says to the child "ask the dolly _____." In fact, stages 3 and 4 are exactly parallel to her method, except that a human being is on the receiving end of the question rather than a doll. It is probably not crucial in stages 3 and 4 whether a doll is used or not, but it is crucial in stages 1 and 2 that the receiver of the message be a speaker of the language into which the child must translate, and because psychologists like to keep control of as many variables as possible, it would be preferable that it be a human message receiver throughout the four stages.

This method then, requires two experimenters at the minimum: one experimenter who the subject believes speaks only Language A, the other who the subject believes speaks only Language B. The child's task is to act as interpreter between the two experimenters. In stage 1 the child interprets from Language A to Language B; in Stage 2, from Language B to Language A. Possible frames in which the sentences[9] may be embedded are:

Ask X $\left\{\begin{matrix}\emptyset \\ \text{if} \\ \text{where} \\ \text{why} \\ \text{when} \\ \text{what} \\ \text{how} \\ \text{who}\end{matrix}\right\}$ _____; Tell X $\left\{\begin{matrix}\emptyset \\ \text{that} \\ \text{to}\end{matrix}\right\}$ _____; Order X to _____.

There are several possible advantages to his method over the translation technique. One is that this method may be more successful with younger subjects. It is possible that instructions such as, "tell me how to say X in French", may not be meaningful to children younger than three, but that the language cues emitted from the respective experimenters are enough to cause the child to speak the appropriate language to each experimenter. Also it is perhaps a much less artificial situation to put a child in than is the requests of translations. The interpreter situation adds both motivation and contextual support to the task.

It may be that this technique is useful in studying the acquisition of certain sociolinguistic rules. For example, at age three, a child may have no qualms about ordering an adult to "pick up the toys", but by age five may hesitate to issue sach an order to an adult.

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[9]As in the translation technique, two sets of sentences must be constructed, and the earlier discussion of these sets also applies to the interpeter technique.

Proposed Research[10]

Introduction and General Hypotheses[11]

Why study acquisition of two language, simultaneously when we don't even know how a child acquires one language? The child in a bilingual environment is constantly presented with two syntactically different systems...two syntactically different ways of signalling the same meaning. Which syntactic device does the child choose to use first? Is this consistent across children regardless of their differential exposure to the two languages? Is the device used in one language immediately used in both languages? Or is the acquisition of that device followed by the acquisition of the syntactically different device in the other language? Answers to these questions can tell us how the bilingual[12] child approaches the task of learning two languages, and if he does so in a manner different from monolingual children. Differences found will provide insight into the language learning process of both monolinguals and bilinguals. Also, the psychological reality of present transformational theory can be tested by using the concept of derivational complexity to predict which syntactic device is acquired first by the bilingual child.

The primary concern of the present investigation is to determine what the bilingual child knows about the syntactic structures of his linguistic system(s) at given points in time. Generally, the hypothesis being tested is that language separation[13] occurs very late in the developmental sequence; or, in other words, the bilingual child approaches the task of language learning by attempting to make one coherent system out of the two input systems. The basis of this system could be a) the syntactic structures of one of the two input languages or b) some combination of the syntactic structures. The alternate hypothesis is, of course, that two separate language systems develop simultaneously from the beginning of the language acquisition process.

Investigation of these hypotheses will take the form of characterizing the sequence of immature syntactic structures that precede the acquisition of well-formed adult structures, and the sequence of emergence of well-formed adult syntactic structures in bilingual children. Derivational complexity will be used to predict the order of emergence of well-formed syntactic structures.

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[10] What follows is a very rough sketch of a research project to be carried out in Quebec, Canada early in 1969. Criticisms and suggestions will be gratefully received.

[11] More specific hypothesis cannot be formulated until the sets of test sentences have been constructed.

[12] Bilingual is used here to characterize any child who has been exposed continually to two languages from birth. This is not to imply separation of the syntactic systems. Separation of the syntactic systems will be considered to have occurred only when it becomes necessary to write two grammars (at either the phrase structure or transformational level) to characterize the knowledge the bilingual speaker has about his linguistic systems.

[13] Language separation is hereafter taken to mean separation of the syntactic system as the syntactic component of a grammar is considered to be the critical component (see earlier section re transformational grammar).

If the two languages develop independently from one another, then the acquisition sequences of English monolingual children must correspond with that of the acquisition sequences of English by bilingual children; and similarly with the acquisition sequences of French.

If the bilingual child makes one system out of the two input languages, the basis of that system being the syntactic structures of one of the two input languages, then the acquisition sequences must correspond with those of whichever language is used as base.

If the bilingual child makes one system out of the two input languages, the basis of that system being some combination of the two input languages, then the acquisition sequence will be different from those of either input language.

Method

Design: Three groups (English monolinguals (E), French monolinguals (F), and French-English bilinguals (FE)) of children at three age levels (24-35 months (A1), 36-47 months (A2), and 48-59 months (A3)) will be tested.

Procedure: See methodology section: further pilot work will determine the exact method used.

Materials: not yet constructed, but will include sentences for investigation of the development of negative structures and interrogative structures (including tag questions, yes-no questions, and wh questions).

Subjects: Children exposed only to English (E), children exposed only to French (F), and children exposed to both English and French from birth, i.e. both languages are spoken in the home (FE).

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